The following information is required when submitting a document to PDC for issuance.	Correspondence (CCN) No: __066501__
	Document No: _____
	Rev: _____

Project Information (Check Applicable Box)

☐ Balance of Facilities   ☐ HLW Vitrification   ☐ Analytical Laboratory   ☒ Across all areas

☐ Pretreatment   ☐ LAW Vitrification   ☐ External Interfaces

Document is applicable to ALARA (as determined by the originator)?   ☐ Yes   ☒ No

Applicability to ALARA means that the item has the potential to affect doses, contamination levels, or releases to the environment. (See 24590-WTP-GPP-SRAD-002, *Application of ALARA in the Design Process*, sections 4.1 and 4.2 for more information.)

Subject code(s): __4152__ _____ (for correspondence only)

ACTION ITEM INFORMATION (for correspondence other than meeting minutes)

Commitments: ☐ Yes   ☒ No (if yes, brief description below)

_____

_____

Tracked by RITS

Commitment Owed to: _____   Due Date: _____

Actionee(s)			

Tracked by PADC

Written Response Required: ☐ Yes ☐ No

Owed to: _____   Due Date: _____

This correspondence closes action on Correspondence Number _____

☐ Subcontract Files _____ Copies

☐ PAAA Coordinator   MS14-4B

☐ Contains SENSITIVE Information

Additional Departmental Info (to facilitate keyword search)

Internal ☐   DNFSB ☐   ORP ☒   OSR ☒   WDOE ☐   WDOH ☐   Other _____

Special Instructions for PDC

Concurrence Sheet

CCN: 066501

Neal Brosee, chapter 12 per our discussion to clarify the operating procedures for the SCT concept per the contract & not the MSO contractor

Required Reviewers

Title	Name	Concurrence required (Check appropriately)	Initials	Date
Project Manager	J. P. Betts	☒		9/3/03
Deputy Project Manager	A. Beckman	☐		
Operations Manager	S. F. Piccolo	☐		
Engineering Manager	R. J. Tosetti	☐		
Environmental & Nuclear Safety	F. Beranek	☒		9/2/03
Construction Manager	T. L. Horst	☐		
Project Controls Manager	D. S. Hardin	☐		
Business Manager	C. E. Rogers	☐		
Acting Contracts Manager	J. M. Armstead	☒		9/3/02
Project QA Manager	G. T. Shell	☐		
HLW Area Project Manager	P. W. Schuetz	☐		
LAW Area Project Manager	W. Clements	☐		
Pretreatment Area Project Manager	R. E. Lawrence	☐		
BOF Area Project Manager	J. Q. Hicks	☐		
Interface Management Manager	T. M. Brown	☐		
Lab Area Project Manager	P. J. Keuhlen	☐		
Process Operations	K. J. Rueter	☐		
Research and Technology	W. L. Tamosaitis	☐		
Commissioning	M. N. Brosee	☐		
Acquisition Services Manager	K. M. Chalmers	☐		
BNI Legal	D. M. Curtis	☐		
Project Manager Special Project 14-3C	H. N. Taylor	☐		

Additional Reviewers

Title	Name	Initials	Date

W. R. Spezialetti			9/2/03
Print/Type Applicable Line Manager's Name	*Signature*		*Date*
R. L. Dickey			9/2/03
Print/Type Originator's Name	*Signature*		*Date*

24590-PADC-F00010 Rev 10   **Best Available Copy**   Ref: 24590-WTP-GPP-PADC-006

U.S. Department of Energy
Office of River Protection
Mr. R. J. Schepens
Manager
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

CCN: 066501

SEP 0 5 2003

Dear Mr. Schepens:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF REVISED PRELIMINARY SAFETY ANALYSIS REPORT VOLUME I CHAPTER 12 PROCEDURES SECTIONS TEXT RESPONDING TO U.S. DEPARTMENT OF ENERGY COMMENTS ON ABAR 24590-WTP-SE-ENS-03-411 ATTACHMENT 1

Reference: CCN 062226, Letter, J. P. Henschel, BNI, to R. J. Schepens, ORP, "Transmittal for Approval–Authorization Basis Amendment Request 24590-WTP-SE-ENS-03-411, Revision 0, "PSAR Vol. I Chapter 12 (Procedures Related Sections) 2003 Update" dated August 05, 2003.

Bechtel National, Inc. (BNI) submitted Authorization Basis Amendment Request (ABAR) 24590-WTP-SE-ENS-03-411, Revision 0 to the U.S. Department of Energy (DOE), Office of River Protection, and the Safety Regulation Division (OSR) on August 5, 2003, for approval. Attachment 1 of the ABAR provided proposed text revisions to Chapter 12, "Training and Procedures" of the Hanford Tank Waste Treatment and Immobilization Plant's *Preliminary Safety Analysis Report (PSAR) to Support Partial Construction Authorization; General Information* (Volume 1), 234590-WTP-PSAR-ESH-01-001-01.

Based on an ABAR review meeting held on August 20, 2003, between Karen Lesko of the BNI Commissioning and Training organization and the OSR, the proposed PSAR Chapter 12 text was updated with the changes mutually agreed upon. Attachment 1 to this letter provides the revised text for Chapter 12.

Please note that the safety evaluation provided in ABAR 24590-WTP-SE-ENS-03-411, Revision 0, remains valid for the proposed changes and does not require revision.

Please contact Mr. Bill Spezialetti at 371-3074 for any questions or comments on this transmittal.

Very truly yours,

J. P. Henschel
Project Director

RD/slr

Attachment: Updated PSAR Volume 1 Chapter 12 Text, Revised from Attachment 1 to ABAR
24590-WTP-SE-ENS-03-411

cc:

Allen, B. T. w/a	WTP	MS4-B1
Armstead, J. M. w/a	WTP	MS14-3B
Barr, R. C. w/a	OSR	H6-60
Beranek, F. w/o	WTP	MS4-A1
Blehm, L. w/a	WTP	MS12-2B
Dickey, R. w/a	WTP	MS4-B1
DOE Correspondence Control w/a	ORP	H6-60
Dougherty, L. w/a	WTP	MS4-B1
Ensign, K. R. w/o	ORP	H6-60
Erickson, L. w/o	ORP	H6-60
Eschenberg, J. w/a	ORP	H6-60
Hamel, W. F. w/o	ORP	H6-60
Hanson, A. J. w/o	ORP	H6-60
Klein, D. A. w/o	WTP	MS4-A1
Lesko, K. F w/a	WTP	MS12-2B
PDC w/a	WTP	MS11-B
Ryan, T. B. w/a	WTP	MS4-B1
Short, J. J. w/o	ORP	H6-60
Spezialetti, W. R. w/a	WTP	MS4-B1
Taylor, W. J. w/a	ORP	H6-60
Tosetti, R. J. w/o	WTP	MS4-A2

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12 Procedures and Training

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12 Procedures and Training

12.1 Introduction

P-1

Structured processes for developing, maintaining, and delivering procedures and training have been implemented for the design and construction phase of the project and similar processes will be implemented as the project moves to commissioning and operations. These processes are documented in approved project administrative procedures. Work is planned and performed in accordance with established controls. This ensures repeatable, predictable operation that complies with regulatory requirements and implements safe work practices. The rigorous approach to procedure development, the performance-based approach to training, and the emphasis on following procedures when performing work, demonstrates the project's commitment to working in accordance to established controls. During facility operations, these processes will ensure that the safety hazard and accident analyses summarized in Chapters 3.0 of the Final Safety Analysis Report (FSAR) form the basis of the technical content of operating procedures and training for normal, off-normal, and emergency conditions. These processes will also ensure specific procedures and training, described in other chapters of this document, are systematically developed and maintained. Other chapters of the Final Safety Analysis Report (FSAR) that will contain specific requirements for training or procedures include:

P-2

- Criticality Safety (Chapter 6.0)
- Radiation Protection (Chapter 7.0)
- Hazardous Material Protection (Chapter 8.0)
- Waste Management (Chapter 9.0)
- Initial Testing, Operational Safety, In-service Surveillance, and Maintenance (Chapter 10.0)
- Conduct of Operations (Chapter 11.0)
- Quality Assurance (Chapter 14.0)
- Emergency Preparedness (Chapter 15.0)
- Management Organization, and Institutional Safety Provisions (Chapter 17.0)
- Fire Safety Program (Chapter 18.0)

12.2 Requirements

P-1

The requirements that form the basis for the facility procedures and training programs are found in:

P-2

Safety Requirements Document (SRD; 24590-WTP-SRD-ESH-01-001-02)

Section 4.0	Engineering and Design
Section 4.0-4.2	Safety Criterion
Section 7.2	Training and Procedures
Section 7.2-1 - 7.2-8	Safety Criterion
Section 7.3	Quality Assurance
Section 7.3-3 - 7.3-5	Safety Criterion

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Integrated Safety Management Plan (ISMP; 24590-WTP-ISMP-01-001)

ISMP Section	WTP Project Integrated Safety Management Element	WTP Project Radiological, Nuclear, and Process Integrated Safety Management Coverage PSAR PSAR Vol. I Chapter 12
1.5	Training and Qualification	Section 12.4, "Training Program"
1.5	Procedures	Section 12.3, "Procedures Program"
1.5	Development of Operator Training Program	Section 12.4, "Training Program"
1.5	Mechanical Integrity	Chapter 12, "Procedures and Training"

P-3

Other

P-4

QAM-24590-01-00001   Quality Assurance Manual, Policy Q-02.2, Personnel Training and Qualification, Policy Q-05.1, Instructions, Procedures, and Drawings

12.3 Procedures Program

12.3.1 General Information

P-3

The Authorization Basis (AB) for the project (included in the requirements documents block on Figure 12-1) is established in cooperation with DOE, and provides the safety, quality, and management control requirements for radiological, nuclear and process safety during the design, construction, commissioning, and deactivation of the WTP. Project procedures specify a process to evaluate procedures and procedure changes against the AB for determination of compliance with the AB requirements.

P-1

The WTP as a project is committed to meeting requirements and standards for protecting the safety and health of project workers, the public and the environment and for ensuring that work is planned, performed, and documented ~~appropriately~~. Implementation of these expectations is achieved through a procedure management system that encompasses the development, review, approval, distribution, use, and revision of procedures. Project procedures are prepared to provide explicit instructions for accomplishing work and to support management control functions and technical work activities. Administrative procedures are used to implement management controls functions and assist in ensuring that work is performed systematically and correctly. Administrative and Technical Procedures are prepared during the appropriate phases of the project, to support activities such as:

P-2

- Configuration Management
- ~~Engineering~~ Design
- Construction
- ~~Commissioning~~ Commissioning (e.g. testing, operations, maintenance, procedures, training, periodic surveillance)
- Emergency Management
- Fire Protection

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P-2 cont'd

- Training and Qualification
- Work Planning
- Quality Assurance
- Management Assessments
- Safeguards and Security
- Radiation Safety
- Criticality Safety
- Chemical Process Safety
- Environmental Protection
- Incident Reporting and Investigation
- Human Factors
- Deactivation and Decommissioning
- Records Management

P-3

Procedure management programs include mechanisms to collect and respond to feedback on procedure improvements. These mechanisms include activities such as user feedback, incident investigations, audits, and assessments.

12.3.1.1   Design and Construction Phase Procedures Program

P-1

The WTP project meets its commitment to working in accordance with established management controls ~~during, engineering,~~ during design and construction phases through implementation of a procedures management system. This system supports safe work planning, maintains compliance with regulatory and quality requirements, encourages employee involvement, and actively seeks out constructive feedback and continuous improvement. The procedures management system implements the elements of Integrated Safety Management System (ISMS) and is an essential part of the (ISMS). The project readiness assessment process determines the procedure set required to support Construction activities. Procedures are developed and issued before the activity governed by the procedure takes place.

P-2

Figure 12-1 shows the origin of project requirements and the flowdown of these requirements to implementation. Requirements come from the prime contract for the project. These contractual obligations require the project maintain compliance with applicable federal, DOE, state, and local regulations and requirements for non-radiological worker safety and health; radiological, nuclear, and process safety; quality assurance (QA); and environmental protection.

P-3

~~The Authorization Basis (AB) for the project (included in the requirements documents block on Figure 12-1) is established in cooperation with DOE, and provides the safety, quality, and administrative control requirements for radiological, nuclear and process safety during the *design* engineering, procurement, and construction, of the WTP. operation, maintenance, and deactivation The AB also serves as the benchmark against which a proposed change to the facility, or procedures, programs, plans, or management processes is evaluated for potential safety, quality, and regulatory implications. Project documents such as management directives, policy statements, plans and charters impose management expectations, describe programmatic processes, establish functional or organizational plans, or assign responsibilities for accomplishing project goals.~~

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P-4

Procedures and other documents described in the Quality Assurance Manual (QAM) as implementing documents incorporate the regulatory requirements defined in the documents in the upper three levels of Figure 12-1 and provide traceable implementation of these requirements. Procedures are required when a defined task or activity accomplishes work or for activities defined in the QAM or other AB or requirements document.

P-5

For construction activities, the basic work planning process is based on the concept that for standard construction tasks, step-by-step work instructions are not required. A combination of technical specifications, field procedures, and drawings are used to perform the work. Individuals involved in the work are trained to the requirements. The work is planned using a construction administrative procedure addressing construction work packages. When unique or complex tasks are performed, work planning is addressed in a construction administrative procedure addressing special instruction work packages. This procedure provides for using a work package with additional controls, including, where appropriate, step-by-step instructions.

P-6

The procedure owner is responsible for ensuring that procedure are reviewed by affected organizations, maintained consistent with the AB and other Project requirements, and ~~have identified owners responsible for ensuring capture of requirements~~ approved prior to issuance. Reviewer(s) with responsibility and accountability for the work activities covered in the procedure, or who are affected by the procedure activities, concur with the procedure before it is issued. The Project Archives and Document Control (PADC) ~~Department~~ organization provides a controlled delivery system that allows WTP personnel access to controlled, current versions of issued procedures.

12.3.1.2   Commissioning Phase Procedure Program

Project activities will be conducted in accordance with procedures. The WTP procedures organization, will develop, and ~~maintain~~control, procedures in conformance with ~~project~~ contract requirements. The project QA manual and implementing procedures will control WTP work processes and will implement the elements of ISMS. ~~All control processes that support important to safety equipment, and SAR assumptions or results will be performed in accordance with written procedures.~~

Procedure development~~, review~~ and ~~approval~~ control processes will be governed by administrative procedures that define minimum requirements for technical procedure development and use, including processes for the identification of need, preparation, review, approval, change, revision, use, and periodic review of procedures for -commissioning activities.

P-3

Procedure users will use and comply with approved technical procedures. Processes for controlling procedure use will be defined in the management control procedures for the procedure program and controlled by the Conduct of Operations program. Procedure use requirements will be based on safety and quality considerations, risk to workers and equipment, complexity of task and frequency of performance. Procedure use requirements will be implemented via a classification scheme that will define categories of usage that may include characteristics such as "continuous use, step-by-step, in-hand, reference use, etc." ~~as required by the classification description. Classification descriptions for technical procedures may include as a minimum~~:

P-4

~~Continuous Use – the nature of the task requires this type of rigor because (1) potential difficulties are present either through the complexity of the procedure, the nature of the work, or the task affecting~~

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~~other components within a more sensitive system or (2) a safety problem or damage to the equipment could occur if this procedure is not followed correctly.~~the procedure, or its applicable sections, must be open and in use for ~~in sequence, step-by-step compliance~~ performance as directed by the procedure in the order designated by the procedure, unless otherwise directed by the procedure, during performance of the task or activity.

P-5

~~☐Reference Use – those procedures where the task can be accomplished without the procedure being open and in use; indicates that the task is performed routinely; and indicates there is little to no liability to personal safety, economic value, the environment, or equipment failure if performed out of sequence.~~the procedure does not have to be open and in use, but the required sections and steps in the procedure must be completed in the order designated by the procedure, unless otherwise directed by the procedure.

P-6

The ~~most recent~~current version of all applicable procedures will be provided to the worker. It will be the line management's responsibility to ensure controlled copies of procedures and instructions are available and to train workers on identifying and using the current procedure revision. The procedure user will have the responsibility to ensure that the procedure to be used is the ~~most~~current version.

P-7

WTP administrative procedures will require that procedure users stop work if the work cannot be accomplished as described in the procedure or if accomplishment of the work would result in an undesirable situation. The procedure user will be required to notify supervision if work cannot be accomplished as described in a procedure.

P-8

The following table identifies ~~procedure types in use~~activities and anticipated procedure needs for those activities for different phases of the project:

P-8

Procedure ~~Type~~Activities	Design	Construction	Commissioning
~~Design~~Configuration Management	X	X	X
~~Construction~~Design	X	X	X
Construction		X	X
~~Commissioning~~Commissioning		~~X~~	X
Periodic Surveillance (TSR)			X
Maintenance		X	X
~~Normal/Off Normal Operations~~Emergency Preparedness	X	X	X
Fire Protection	X	X	X
~~Surveillance~~Training and Qualification	X	X	X
Work Planning		X	X
Quality Assurance	X	X	X
Management Assessments	X	X	X
Safeguards and Security	X	X	X

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12.3.2   Development of Procedures

12.3.2.1   Design and Construction Phases Procedure Development

P-1

At WTP, the processes for developing, issuing, revising and canceling procedures and other administrative documents is governed by administrative procedures that have been reviewed by affected organizations, and approved by responsible management.

P-2

The determination of when a procedure is necessary is based on the flow-down of requirements, risk, task complexity, quality, and safety considerations. Guidance on format, content, and presentation of materials is provided by the procedure on procedures.

P-4

The WTP document control system is administered by the PADC ~~Department~~organization. This system provides a controlled electronic delivery system of approved procedures and lists approved procedures, by title, number, revision, and effective date.

12.3.2.2   ~~Operational~~ Commissioning Phase Procedure Development

P-1

Safety Requirements Document (SRD), section 7.2-~~5~~3 requires procedures be developed for anticipated operations, evaluations, tests, and off-normal or emergency situations. The extent of detail in a procedure will depend on the complexity of the task, the experience and training of the user(s), the frequency of performance, and the significance of the consequences of error. Administrative procedures will delineate the process and requirements for the preparation or revision of both technical and administrative procedures. ~~The procedures covering the following topics are in place as needed for the construction phase of the project.~~An existing procedure set is in place for the design and construction phase of the project. Changes and additions to the existing procedure set will be identified before ~~cold~~the commissioning phase is entered. Management control procedures needed to commence commissioning ~~cold commissioning~~will be developed and approved for implementation ~~completed~~prior to the start of the commissioning phase. Remaining commissioning procedures (see second bullet below) will be scheduled for completion before the activity takes place. The procedure set falls into two categories

P-2

~~☐ Major administrative programs~~

- Major management control systems~~administrative programs~~

- System and facility ~~operations~~commissioning (including off-normal operations, alarm response and maintenance support activities and control of hazardous processes)

~~☐ Hazardous materials control activities~~

~~☐ Radiological control activities~~

~~☐ Emergency response activities~~

P-4

Steps in the technical procedure development process are illustrated in Figure 12-2 and are described in the following subsections.

P-5

- Identify the need. Technical procedures will be developed for anticipated operations, transients, evolutions, surveillances, maintenance, and off-normal or emergency situations. The need for a new or revised procedure may be identified under the following circumstances:
  - When modifications in the conduct of an operation are implemented
  - When equipment or systems are modified

**ORP/OSR-2002-18 is to be used
in conjunction with this PSAR**

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- When a procedure is deemed inadequate during task performance
- As a result of a periodic review of technical procedures

P-6

- Develop the technical basis. During technical draft development, a subject matter expert will gather information that will lead to identifying the sequence of steps that should be performed in a particular process (i.e., the technical basis for the procedure). Typical source documents used in developing the technical basis for a procedure will include:
  - Safety Analysis Report
  - Technical Safety Requirements (TSR)
  - System Descriptions
  - Facility configuration drawings
  - Vendor information
  - Operational lessons learned
  - P&IDs

P-7

- Prepare and review the draft. Draft procedures will be prepared consistent with administrative procedure requirements. A writer's guide is available should be used to ensure the:
  - Format and content of procedures procedures are consistent
  - Procedure steps are written to effectively communicate the required actions
  - Procedure steps and precautions effectively communicate operating, safety, administrative, design, and quality control limits
  - Procedure incorporates human factors that lead to effective procedure use

P-8

The need, scope, applicability, and basis of each procedure will be documented either in the procedure itself, or in a history file.

P-9

Technical review (verification) will ensure the technical accuracy of a procedure, and compare the procedure against the appropriate source document requirements.

Operations procedures for the WTP will be drafted, reviewed, verified, validated, and approved per the WTP Conduct of Operations Program. Validated procedures will be provided to the testing organization for their use during initial system startup and other testing activities as needed. A set of normal operations procedures, defined in the test program administrative procedures, will be performed during commissioning. The administrative procedure will contain a process for determining which operating procedures will be validated during pre-operational testing. Examples of procedures that may not be fully validated or validated at all during testing include shutdown of the instrument air system (which may need to be left operational after testing) and operations procedures such as fire extinguisher checks (which do not impact system operation). Required changes identified during testing will be incorporated based on information received from the test program. Operations procedures will be revised in accordance with the WTP Conduct of Operations Program (DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, Chapter XVI, Section C. Guidelines, Subsection 1, "Procedure Development"; Subsection 3, "Procedure Changes and Revisions"; and Subsection 5, "Procedure Review"). This criterion is also covered in 24590-WTP-GPP-PL-OP-001, *WTP Conduct of Operations*, section 16.0, "Operations Procedures", steps 16.2.2 and 16.2.7.

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The approval of the operating and maintenance procedures before their performance will ensure that the procedure is compatible with the equipment or system being maintained, and that it provides sufficient and understandable guidance to the end user. The performance and correction of the procedures before facility operation will ensure the procedure's adequacy for facility operation.

P-10

Technical procedure validation will be a review of a procedure generally performed by the end user to ensure its usability and correctness. This review, usually performed at the work location, will validate that the procedure provides sufficient and understandable guidance and direction to the user and that the procedure is compatible with the equipment or system being maintained.

P-11

- Approve the procedure. New procedures and, procedure revisions, will be reviewed and approved according to requirements contained in WTP administrative procedures. Document approval will be indicated by a signature to release and use the procedure. WTP administrative and technical procedures will be assigned a unique procedure and revision number. A record copy will be placed into a document control file, and the most recent revision of the procedures will be made available to procedure users.

12.3.3 Maintenance of Procedures

12.3.3.1 Design and Construction Phases Procedure Maintenance

P-1

Feedback and continuous improvement is integrated in the procedure management program through a variety of processes. These processes gather information concerning the adequacy of procedures and work processes. Opportunities for improving the definition, planning, and performance of work are identified and developed. Examples of these feedback and improvement processes include:

P-2

- Lessons learned
- User feedback
- Management and self assessments
- Independent assessments
- Corrective actions
- Audits

The project procedure complies with the WTP QA Manual, and addresses permanent procedure revisions and expedited procedure changes.

12.3.3.2 ~~Operational~~ Commissioning Phase Procedure Maintenance

P-1

The safety of WTP facilities and personnel will depend on the availability of ~~operating, maintenance, and alarm response~~ procedures that correspond to the current plant configuration. ~~This~~ The process for maintaining technical procedures ~~maintenance and review~~ current with plant configuration will be documented in administrative procedures.

P-2

Training needs related to procedure revisions will be determined by the line manager responsible for the procedure being revised. This determination will be based upon the significance of the change.

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~~12.1.1.1.1~~Procedure Changes

P-1

To ensure procedures continue to be technically and administratively accurate and they incorporate appropriate facility design, safety analysis operation, and vendor technical information, needed changes will be controlled by a process that requires a review and approval of the changes. This procedure change process will be used to proceduralize modifications to important-to-safety (ITS) structures, systems and components (SSCs), processes, or requirements; and to correct procedural errors, ambiguities, and human factor deficiencies that could result in personnel error or unsafe job performance.

P-2

The level of review and approval for procedure changes will depend on the scope of the recommended change, and the approval process will be addressed in WTP administrative procedures.

The project procedure complies with the WTP QA Manual, and addresses permanent procedure revisions and expedited procedure changes. Under the USQ process, a USQ Determination will be performed on designated procedure changes. Both permanent procedure revisions and expedited procedure changes are included in these requirements.

~~12.3.3.2.2~~12.3.3.2.1   Periodic Review of Procedures

P-1

WTP administrative procedures will require that procedures be reviewed at periodic intervals to ensure information and instructions are technically accurate and appropriate human-factor considerations have been included. This process will specify that Emergency Plan Implementing Procedures will be reviewed annually.

12.4   Training Program

12.4.1   General Information

Personnel training and qualification is viewed by WTP facility management as essential in achieving quality performance and in protecting workers and the environment. The senior manager during each project phase will have the overall responsibility for maintaining a qualified workforce for the facility. Line managers will be responsible for the content and effectiveness of training and qualification processes, and a facility training manager will be designated and assigned responsibility for developing and implementing facility training programs.

12.4.1.1   Training During Design Phase

WTP management recognizes the importance of adequate training and development of people in the achievement of safety and health of the workers, public, the protection of the environment, and the achievement of quality. To this end, a training and development program for the design-phase of the project has been developed. The primary objectives of this program are to ensure personnel involved in the Project achieve and maintain the capabilities required to perform their assigned tasks safely.

Management hires people who are qualified by education, training, and experience to fill established positions. Functional and line managers are responsible for development of a training profile for each employee based on applicable job descriptions and task assignments. When knowledge and skills specific

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to the WTP project or to an assigned task are required, task specific training and assessments are provided. Training is concentrated primarily in the areas of design evolutions, compliance with regulations and commitments, QA, and other management control processes.

Once training needs have been identified, suitable instructional methods are selected for training on each subject. Instruction methods include classroom training, computer based training, and reading assignments. Classroom trainers are selected based on knowledge of the subject matter and qualifications for leading the training.

A training department has been established to plan, coordinate, and implement training program. This department takes a graded approach to implementing training, meaning the level of training and testing is commensurate with importance to safety and quality of the results. Written procedures are established for the formal training of personnel, and for ensuring only those individuals who meet their requirements are permitted to perform the organization activities. These training and qualification procedures and the training system described in this section apply to all WTP Project personnel and subcontractor employees. Responsibilities of personnel involved in implementation of the training program are defined in these training procedures. The WTP Training Manager is assigned responsibility and accountability for the implementation of the training program and for periodic evaluation of its effectiveness.

Refresher training is provided to comply with periodic training requirements specified in applicable federal and state regulations or to maintain required certifications. In addition, management specifies retraining on certain subjects based on preservation of high standards of safety and quality. Records of the identification of training needs and training performed are maintained in accordance with Project Document Control procedures.

~~12.1.1.2~~12.4.1.2   Training During Facility Construction

A training and development program for the construction phase of the project has been developed. The primary objectives of this program is to ensure that the personnel involved in the Project achieve and maintain the capabilities required to perform their assigned tasks safely. When knowledge and skills specific to the project or to an assigned task are required, task specific training and assessments are provided both for manual and non-manual workers.

Manual workers are qualified at the time of hiring by training and experience to fill established positions. Project construction management is responsible for development of a training profile for manual worker job classifications. Training for manual workers is concentrated primarily in the areas of industrial safety, fire protection, appropriate Hanford site employee training and QA.

Non-manual workers are qualified at the time of hiring by education, training, and experience to fill established positions. Functional and line managers are responsible for development of a training profile for each non-manual employee based on applicable job descriptions and task assignments. These non-manual workers are included in the training program described in section 12.4.1.1 above and in construction-phase specific training. Training is concentrated primarily in the areas of design evolutions, construction activities, compliance with regulations and commitments, QA, and other management control processes.

Once training needs are identified, suitable instructional methods are selected for training on each subject. Instruction methods include classroom training, computer based training, videos, and reading

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assignments. Classroom trainers are selected based on knowledge of the subject matter and qualifications for leading the training.

Construction management has assigned personnel to plan, coordinate, and implement an effective training program. Written procedures are established for the formal training of personnel, and for ensuring only those individuals who meet their requirements are permitted to perform construction activities

Refresher training is provided to comply with periodic training requirements specified in applicable federal and state requirements or to maintain certain certifications. In addition, management specifies retraining on certain subjects based on preservation of high standards of safety and quality. Records of the identification of training needs and training performed are maintained in accordance with PDC procedures.

12.4.1.3   Training During Facility Operation

The training and qualification standards and the training system described in this section apply to WTP facility personnel and subcontractor employees performing operations, maintenance, and technical support work at the facility.

The goal of training during the operational phase will be to ensure that personnel engaged in activities affecting safety attain the ability to work safely and are qualified to perform their duties. Specific objectives of training will include: understanding processes thus improving technical ability; increasing awareness of hazards and the value of engineered and administrative controls that function to prevent and mitigate the hazards and hazardous situations; enhancing communication skills and effectiveness of supervision; demonstrating worker qualifications; and establishing a safety culture. The training system described herein will incorporate these objectives to serve as the management tool for analyzing training needs, and designing, developing, conducting, and evaluating training.

The types of training provided at the WTP facility will fall into the following general categories:

- Training specific to activities that implement requirements contained in the AB.
- Performance-based specialized training is provided for key personnel employed in particular operations, maintenance, technical support, and supervisory positions tailored to their involvement with important-to-safety activities resulting from the PSAR. A simulator package may be provided to support operational training including process emergencies.
- Regulations applicable to establishments that handle radioactive and hazardous material require that all personnel, including vendors, subcontractors and visiting personnel are trained in how to conduct themselves on the site, respond to alarms, and use personal protective equipment and emergency response equipment, depending on the nature of their work.
- Employees new to the facility require training to a minimum level of awareness and capability to perform their assigned duties.
- Training specific to facility or process modifications and new technology is provided, or training is provided when personnel are transferred to new areas of work.
- Special training is provided when normal skills and expertise are to be employed in unusual circumstances such as during non-routine maintenance, infrequently performed activities, or in response to emergencies.

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- Refresher training in routine activities (e.g., radiation protection) is provided to ensure competency is maintained.

The facility will be staffed and managed to plan, administer, evaluate, and control a systematic process that accomplishes job-related training needs. The training and qualification system will be documented and implemented as described in WTP facility procedures to ensure training activities are consistently and effectively conducted. The WTP Training Manager will be assigned responsibility and accountability for the implementation of the training program and for periodic evaluation of its effectiveness.

Facility procedures will define the responsibilities and roles, authority, and accountability of other personnel involved in managing, supervising, and implementing training programs. Specific facility procedures will describe the qualification and requalification process, personnel selection requirements, procedures for development, review, approval, and control of training materials, conduct of on-the-job training (OJT), control of on-shift training, conduct of drills, and administration of training examinations.

Line managers, in conjunction with operations and technical support training personnel, will have the primary responsibility for conduct of the training programs and will be responsible for providing the resources necessary for their staff to participate in training required for their job function. WTP facility management will be involved in the implementation of training programs by providing performance objectives and approvals regarding training needs and the content of instructional materials. In addition to ongoing performance monitoring by line management, periodic assessments will be conducted as part of the training program evaluation process.

The WTP facility training plan will describe the initial, continuing, and refresher training requirements for key personnel whose level of knowledge and skill will be important to safe facility operation. The training plan will also contain minimum education, experience, and medical (if applicable) requirements for each identified position and will specify the training and any special qualifications that are required. As a minimum, formal training will be provided to the following personnel:

- Facility staff members (for example, basic radiological, chemical, criticality, industrial safety)
- Process operators
- Technicians (for example, laboratory, radiological control)
- Maintenance personnel
- Emergency response personnel
- Supervisors and managers
- Technical instructors
- Visitors allowed unescorted access
- QA personnel
- Subcontractor employees who perform any of the above jobs at the facility

Initial and continuing training programs will be established to ensure individuals are qualified to perform job requirements, to maintain proficiency, and to ensure safe facility operations. Classroom training and OJT will be conducted by designated, qualified individuals. Qualifications for instructional personnel will be specified in the training plan. Personnel new to the WTP Facility or changing to a position for which they have not received training, will complete required training within a specified period after

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starting the assignment. Personnel who have not received training can work only under the supervision of trained personnel.

Individual training profiles will be tailored to match the employee's role in the organization and will specify minimum amounts and types of training and testing that must be completed before qualification is obtained. Operations personnel in training will be supervised and controlled to ensure the appropriate information is being learned and to use trainee time effectively. Supervision will ensure that operator are taught to rely on engineered features and to avoid mistakes during operational activities.

Initial training will consist of the appropriate combination of required reading, self-study, classroom lectures, computer-based training (CBT), OJT, and performance evaluations. Facility control system simulators and prototype melters may be used, as appropriate, to provide a low-risk training environment for operational and maintenance personnel to support testing activities. Initial training programs will include, as applicable, training on basic theory and fundamentals, principles of facility operation and operating characteristics, facility systems, and normal, off-normal, and emergency operating procedures. Exceptions from training will be granted when justified and approved by management; the exception process will be controlled by WTP training procedures. OJT and task qualifications will be completed by actual task performance. When the actual task can not be performed, walk through training will be utilized and provisional qualification granted.

Continuing training will be administered on a two-year cycle and will include an appropriate combination of required reading, self-study, classroom training, CBT, OJT, and performance evaluations. Training content will be tailored to the position and may include topics that cover significant changes to facility, SSCs, and procedure changes; operating experience feedback; training to correct identified performance problems; and selected fundamentals, including seldom-used knowledge and skills necessary to ensure safety. Employees involved in operating a process will be trained in an overview of the process and in the operating procedures and instructions. The training will include emphasis on the specific safety and health hazards, operating limits, emergency operations including shutdown, and safe work practices applicable to the employee's job tasks. As applicable, continuing training will include feedback from lessons learned from performance events at WTP and from industry events. For emergency responders, training will also include drills on off-normal or accident situations and use of facility systems to control or mitigate accidents.

12.4.2 Development of Training Material

12.4.2.1 Development of Training Material During Design Phase

The training department and subject matter experts work together to create course material and recommend the method of instruction. Course content including lesson plans, briefing guides, handouts, exercises and exams is based on course objectives developed by line management, subject matter experts, and the training department. Trainee mastery will be evaluated by various methods, including administering written tests, or by management observation of trainee's demonstration of skills and knowledge during actual job performance.

12.4.2.2 Development of Training Material During Facility Construction

The construction organization uses subject matter experts to create course material and recommend the method of instruction. Course content including (as applicable) lesson plans, briefing guides, handouts,

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exercises and exams is based on course objectives developed by line management and subject matter experts. Trainee mastery is evaluated by various methods, including administering written tests, or demonstration of skills and knowledge presented in the classroom.

12.4.2.3   Development of Training Material During Facility Operations

The WTP's performance-based training system will provide a systematic approach for the development, conduct, and evaluation of training programs. Performance-based training will include five general phases: analysis, design, development, implementation, and evaluation. These five training system phases will be implemented on a graded approach governed by facility procedures. At a minimum, the full five phase performance-based system will be applied to positions where the SAR specifies human performance as necessary to prevent or mitigate consequences of SAR concerns. Using this systematic approach to training will ensure the facility training system achieves the following:

- Bases training on a systematic analysis of each job position - The training staff and technical experts will develop a list of tasks that require training by using available job information such as safety and hazards analyses procedures, TSRs, and equipment and system operating manuals.

- Uses learning objectives derived from the analysis - Learning objectives will be defined during the design phase of the systematic approach to training. Action statements that describe the desired post-training performance by using the task list will be developed. Learning objectives will identify the knowledge, skills, and abilities the trainee must demonstrate, the conditions under which required actions will take place, and the standards of performance the trainee will achieve. Learning objectives are sequenced based on their relationship to one another.

- Evaluates trainee mastery of objectives during training - Trainee mastery will be evaluated by administering oral or written tests (or both) at the end of most courses, and by measuring student behavior in terms of the skills, knowledge, and attitudes exhibited in the operational environment, utilizing job performance measures.

- Bases evaluation and revisions on the job performance of trainees - Through ongoing performance monitoring, and by observing facility events, reviewing industrial accident reports, and interviewing personnel, tasks will be identified in which inadequate training may be contributing to equipment damage, unscheduled maintenance, unsafe practices, or non-adherence to approved procedures.

Personnel knowledgeable of the training design and process functions will use the information obtained in the analysis and design phases to develop training materials that accomplish the learning objectives. Each job task selected for training from the facility-specific list of tasks is linked to supporting procedures and training materials. Training materials may include lesson plans, student guides, handouts, software, and written, oral, or performance evaluations. Lesson plans or equivalent training guides will be developed to provide guidance and ensure consistent presentation of in-class training and OJT.

Lesson plans will typically include the following elements:

- Learning objectives
- Instructor preparation guidelines
- A list of the training aids and materials used in the lesson
- Safety precautions and procedural limitations
- References

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- A list of prerequisite training
- Presentation methods
- Evaluation methods.

WTP procedures describe the process for review, approval, and revision of training materials.

Examinations (e.g., oral, written, performance) will be prepared during the development phase to provide a means to objectively assess student mastery of the material. Examination design will include a review of the test item data from the design phase, a comparison of the learning objectives and test items as stated in the lesson plan, and development of a test specification table to ensure the student has met the learning objectives in terms of knowledge, comprehension, and application.

12.4.3   Maintenance of Training

During all project phases, personnel whose job tasks will be affected by a change in an administrative process or procedure, or by an SSC being modified, will be trained on the changes prior to performance of the job tasks.

12.4.3.1   Maintenance of Design and Construction Phases Training

Effective training programs reflect current Project policies, procedures, configuration, and current regulations. To ensure training properly reflects the current situation, a process to maintain WTP training materials current tracks items that may affect the content of training programs and materials, including the job tasks analysis for the positions affected by the changes. The training department and line management respond to feedback from the configuration management system, quality program, and self assessment activities regarding physical, technical, and procedural changes to the project. New regulations, the need for performance improvements, or a reorganization of job responsibilities are other examples of changes that must be evaluated for impact on the training and development program. Training will be modified or developed in a timely manner and as appropriate to respond to sources of feedback, changing requirements, or changing policy or procedures.

Systematic evaluations of the training and development program are performed to measure training adequacy and its relationship to on-the-job performance. In addition, student course critique results are used for on-going adjustments to the course content and presentation.

12.4.3.2   Maintenance of Operational Phase Training

To ensure that training reflects current operating practices and procedures, a process to maintain training materials current will track items that may affect the content of WTP facility training programs and materials. This process will be accomplished in conjunction with the configuration management program (section 17.4.2, Configuration Management) and the procedure change process, and will permit the training staff to respond to the need for changes resulting from new or revised regulatory requirements, safety analyses, TSRs, procedure changes, changes in facility equipment configuration, and resolution of audit finding. The content of training materials will be revised using the same administrative controls that are used to develop new training materials.

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Training and qualification programs require a significant investment in equipment, materials, and personnel resources. Periodic systematic program evaluations will be conducted to measure the training system's effectiveness in producing qualified employees. Training program evaluations can identify program strengths and weaknesses, determine if worker performance has improved, assess if program content matches current job needs, and determine if corrective actions are needed to improve program effectiveness. It will be a line management responsibility to lead training program evaluations and to implement corrective actions to make identified improvements. Program evaluations will be conducted on an established schedule and may consist of an overall evaluation or a series of topical evaluations over a period of time.

Evaluation objectives that are applicable to the training program or topical area being reviewed will be developed, and may address the following elements of training:

- Management and administration of training and qualification programs
- Development and qualification of training staff
- Trainee entry-level requirements
- Determination of training program content
- Design and development of training programs
- Conduct of training
- Trainee examinations and evaluations
- Training program assessments and evaluations by former trainees and their supervision

Evaluation results will be documented. Identified deficiencies will be reviewed, improvements recommended, and changes made to procedures, practices, or training materials, as necessary.

Auditable records will be maintained through the WTP facility Document Control System on individual employee training completions, job performance, and fitness for intended duty. These records will also include training documentation for subcontractor employees that work at the facility. Records of training development and evaluations will be maintained in training program files. Information such as courses completed, training expiration dates, and summary reports will be available to management to facilitate training analysis, planning, and scheduling activities. Record keeping requirements are described in more detail in section 17.4.4, Document Control and Records Management.

12.4.4 Modification of Operational Phase Training Material

The need to modify training materials may be identified as part of the periodic review process, as a result of an identified training deficiency, by operational event analysis, or by industry experience analysis. Programs will be developed to ensure needed changes identified from these sources are tracked and implemented.

Changes to training program content, together with the reason for the changes, will be documented in the facility training files.

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12.5   References

WTP Project Documents

24590-WTP-ISMP-ESH-01-001-01, *Integrated Safety Management Plan*

24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document, Volume II*

Codes and Standards

DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, US Department of Energy, Washington, DC, USA.

DOE Order 5480.20A, *Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Facilities*, US Department of Energy, Washington, DC, USA.

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Figure 12-1   Document Type Hierarchy

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                    ┌──────────────────────────┐
                    │ Public Law and Regulations│
                    └──────────────────────────┘
                                 │
                    ┌──────────────────────────┐
                    │         Contract          │
                    └──────────────────────────┘
                                 │
                    ┌──────────────────────────┐
                    │  Requirements Documents    │
                    └──────────────────────────┘
                                 │
  ┌──────────────────┐  ┌──────────────────────────┐
  │ Corporate Policies├──┤ Project Management Policy │
  └──────────────────┘  │        Documents          │
                        └──────────────────────────┘
  ┌──────────────────┐  ┌──────────────────────┐  ┌──────────────────────┐
  │ Program Documents├──┤ WTP Management Charters├──┤ Plans/Specifications/ │
  └──────────────────┘  └──────────────────────┘  │  Reports/Drawings, etc.│
                                                    └──────────────────────┘
                        ┌──────────────────────┐
                        │       Procedures       │
                        └──────────────────────┘
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                        │        Guides          │
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                        │  Desktop Instructions  │
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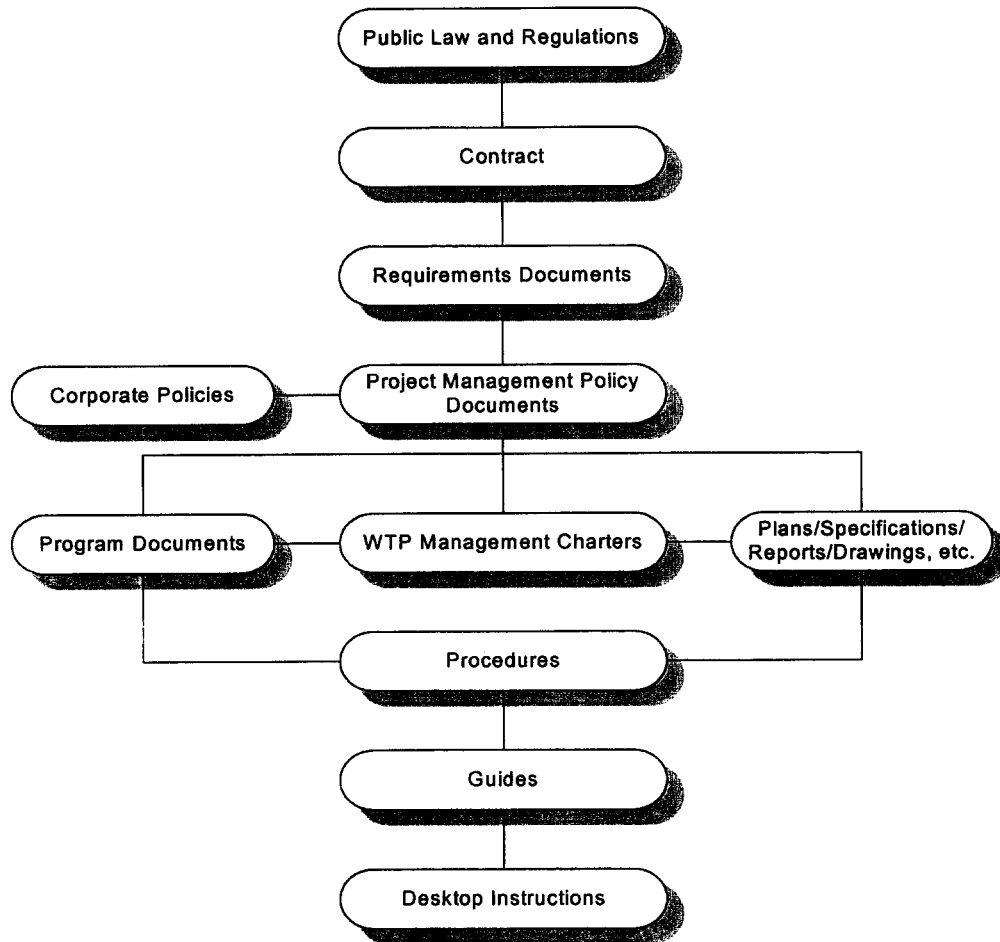Construction Authorization, Volume I,
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Figure 12-2   Technical Procedure Development Process

Identify Need

Develop
Technical Basis

Write Draft

Review Draft
-Verification
-Validation

Perform applicable
administrative processes
including:

- requesting a
document number

- word processing to
ensure proper project
format

- working with PDC for
final issue.

Resolve
Comments

Approve
Procedure

Release and Use

— Working Copy

— Records